

### REMARKS

In accordance with this supplemental response, independent claims 1, 5, 20, 23, 25, 31, 33, 41 and 42 have been amended to recite that the second metal film coating step is for coating at least the reflecting surface, rather than, as previously worded, for coating the reflecting surface and the spring operating part or for coating the spring operating part. Independent claim 48 has been amended to recite that the second coating step is for coating the remainder of the hook-shaped section, including the reflecting surface, with a metal film, rather than, as previously recited, for coating the remainder of the hook-shaped section, including the reflecting surface, and the resilient spring section with a metal film coating. By these amendments, the independent claims have been broadened to omit the limitation that the coating step coats the spring operating part or, in the case of claim 48, coats the resilient spring section. While it is preferable that the spring operating part (resilient spring section) be coated with the metal film coating, such may not always be required, and the need for coating the spring operating part (resilient spring section) depends on its location relative to the pointed tip section of the probe.

Independent claim 48 has also been amended to delete the limitation that the reflecting surface is formed on the hook-shaped section, and the claim has been broadened to

recite that the reflecting surface is formed on the light-propagating body. It is not necessary that the reflecting surface be formed on the hook-shaped section and, depending on the configuration of the light-propagating body, the reflecting surface may be positioned on the spring operating part (resilient spring section), or on the hook-shaped section, or on both the hook-shaped section and the spring operating part. To avoid unnecessarily limiting claim 48, the claim has been amended to more broadly recite that the reflecting surface is formed on the light-propagating body.

Dependent claims 2-4, 12, 13, 32, 45, 46 and 52 have been amended to conform to the amended base claims and to make the wording consistent throughout the claims.

Adverting to the prior art rejection of independent claim 1 made in the last Office Action, the Examiner contends that it would have been obvious to modify the method of manufacturing a light-propagating probe disclosed by JP'332 to include a step of forming a reflecting surface on the light-propagating body in view of the method of manufacturing a light-propagating probe disclosed by Muramatsu, which teaches forming a reflecting surface 15 on the probe body by grinding (see Fig. 5C). Applicants respectfully disagree and submit that persons skilled in the art would not have found

such a modification to be obvious and, in fact, would have been led away from such a modification.

JP'332 discloses in Fig. 2 the step of sharpening an optical fiber 203 comprised of a core 205 surrounded by a clad 204. The clad 204 is removed by etching so that only the core 205 (206) remains. The diameter of the clad is  $125\ \mu\text{m}$ , and the diameter of the core 205 (206) is  $20\ \mu\text{m}$  (see paragraphs [0013 and 0015]). Thus in JP'332, the light-propagating body consists of the core 205 (206) which has a diameter of  $20\ \mu\text{m}$ . Similarly, JP'332 discloses in paragraph [0031] that the light-propagating body 601 shown in Fig. 6 has a diameter of  $20\ \mu\text{m}$  and a length of 3 mm. The reference further discloses that the light-propagating body 601 has an elastic coefficient (constant) of 0.1 N/m when the light-propagating body 601 is displaced in the Z direction.

In order to add a reflecting surface to the light-propagating body 601 shown in Fig. 6 of JP'332, the light-propagating body 601 must be pressed against a polishing plate (see Muramatsu, Fig. 5C). However, due to the low elastic coefficient of 0.1 N/m, the pressure that can be applied to the polishing surface becomes very small, thereby making it extremely difficult and impractical to polish a reflecting surface on the light-propagating body 601. The low elastic coefficient of the light-propagating body 601 and the difficulty in applying proper polishing pressure to the light-

propagating body would have discouraged a person of ordinary skill in the art from forming a reflecting surface by polishing, as taught by Muramatsu, the light-propagating body disclosed in JP'332.

A reference teaches away when a person of ordinary skill in the art, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that the inventor took. In re Gurley, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). Stated otherwise, a reference teaches away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the inventors. W.L. Gore & Assocs. v. Garlock, Inc., 220 USPQ 303, 311 (Fed. Cir. 1983) (the totality of a reference's teachings must be considered), cert. denied, 469 U.S. 851 (1984); In re Caldwell, 138, USPQ 243, 245 (CCPA 1969) (reference teaches away if it leaves the impression that the product would not have the properties sought by the applicant).

On the other hand, in the present invention, a thermal tension method using a carbon dioxide laser or a chemical etching method using a main component of hydrofluoric acid shown in Fig. 12, for example, may be used to sharpen the light-propagating body. As a result, the spring operating part of the light-propagating body does not become as thin as

the light-propagating body shown in JP'332 and, therefore, the light-propagating body has an elastic constant necessary to polish the reflecting surface.

From the foregoing, it can be seen that one of ordinary skill in the art would not have been led to polish a reflecting surface on the light-propagating body of JP'332. The polishing method disclosed by Muramatsu for polishing a reflecting surface on a tubular light-propagating body is not applicable to the solid light-propagating body disclosed by JP'332 and, therefore, it would not have been obvious to modify JP'332 in the manner done in the rejection. In view thereof, applicants respectfully request withdrawal of the prior art rejection.

In view of the foregoing, favorable reconsideration and allowance of the claims are respectfully requested.

Respectfully submitted,

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March 15, 2007

Date